A1

SEQUENCE LISTING

<110> Liu, Qingyun
McDonald, Terrence
Bonnert, Timothy P.
Ng, Gordon
Kolakowski, Lee F., Jr.
Clark, Janet
Bonner, Tom I.

<120> NOVEL GABAB RECEPTOR DNA SEQUENCES

<130> 20052YP

<140> 09/601,582
<141> 2000-12-04

<150> PCT/US99/02361
<151> 1999-02-03

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gttctgttgt gcatacgagg agaacatgta tggtagtaaa tatcagtgga tcattccggg 1140
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gaacgagacc aacttcttcg gggtcacggg tcaagttgta ttccggaatg gggagagaat 1560
ggggaccatt aaatttactc aatttcaaga cagcagggag gtgaaggtgg gagagtacaa 1620

A1 cont.

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catcctctct gccctcacca tcctcgggat gatcatggcc agtgcttttc tcttcttcaa    1800
catcaagaac cggaatcaga agctcataaa gatgtcgagt ccatacatga acaaccttat    1860
catccttgga gggatgctct cctatgcttc catatttctc tttggccttg atggatcctt    1920
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caagggactt ctcatgttgt tcggttgttt cttagcttgg gagacccgca acgtcagcat    2340
ccccgcactc aacgacagca agtacatcgg gatgagtgtc tacaacgtgg ggatcatgtg    2400
catcatcggg gccgctgtct ccttcctgac ccgggaccag cccaatgtgc agttctgcat    2460
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cttccttaac atctgcaaac aaggaggcgc tgggatatcr aattccacca cactggcggc    3420
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Leu Pro Leu Ala Pro Gly Ala Trp Gly Trp Ala Arg Gly Ala Pro Arg
        35                  40                  45
Pro Pro Pro Ser Ser Pro Pro Leu Ser Ile Met Gly Leu Met Pro Leu
    50                  55                  60
Thr Lys Glu Val Ala Lys Gly Ser Ile Gly Arg Gly Val Leu Pro Ala
65                  70                  75                  80
Val Glu Leu Ala Ile Glu Gln Ile Arg Asn Glu Ser Leu Leu Arg Pro
                85                  90                  95
Tyr Phe Leu Asp Leu Arg Leu Tyr Asp Thr Glu Cys Asp Asn Ala Lys
            100                 105                 110
Gly Leu Lys Ala Phe Tyr Asp Ala Ile Lys Tyr Gly Pro Asn His Leu
        115                 120                 125
Met Val Phe Gly Gly Val Cys Pro Ser Val Thr Ser Ile Ile Ala Glu
    130                 135                 140
Ser Leu Gln Gly Trp Asn Leu Val Gln Leu Ser Phe Ala Ala Thr Thr
145                 150                 155                 160
Pro Val Leu Ala Asp Lys Lys Lys Tyr Pro Tyr Phe Phe Arg Thr Val
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Pro Ser Asp Asn Ala Val Asn Pro Ala Ile Leu Lys Leu Leu Lys His
            180                 185                 190
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A1 cont.

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Tyr Gln Trp Lys Arg Val Gly Thr Leu Thr Gln Asp Val Gln Arg Phe
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Ser Glu Val Arg Asn Asp Leu Thr Gly Val Leu Tyr Gly Glu Asp Ile
    210                 215                 220
Glu Ile Ser Asp Thr Glu Ser Phe Ser Asn Asp Pro Cys Thr Ser Val
225                 230                 235                 240
Lys Lys Leu Lys Gly Asn Asp Val Arg Ile Ile Leu Gly Gln Phe Asp
                245                 250                 255
Gln Asn Met Ala Ala Lys Val Phe Cys Cys Ala Tyr Glu Glu Asn Met
            260                 265                 270
Tyr Gly Ser Lys Tyr Gln Trp Ile Ile Pro Gly Trp Tyr Glu Pro Ser
        275                 280                 285
Trp Trp Glu Gln Val His Thr Glu Ala Asn Ser Ser Arg Cys Leu Arg
    290                 295                 300
Lys Asn Leu Leu Ala Ala Met Glu Gly Tyr Ile Gly Val Asp Phe Glu
305                 310                 315                 320
Pro Leu Ser Ser Lys Gln Ile Lys Thr Ile Ser Gly Lys Thr Pro Gln
                325                 330                 335
Gln Tyr Glu Arg Glu Tyr Asn Asn Lys Arg Ser Gly Val Gly Pro Ser
            340                 345                 350
Lys Phe His Gly Tyr Ala Tyr Asp Gly Ile Trp Val Ile Ala Lys Thr
        355                 360                 365
Leu Gln Arg Ala Met Glu Thr Leu His Ala Ser Ser Arg His Gln Arg
    370                 375                 380
Ile Gln Asp Phe Asn Tyr Thr Asp His Thr Leu Gly Arg Ile Ile Leu
385                 390                 395                 400
Asn Ala Met Asn Glu Thr Asn Phe Phe Gly Val Thr Gly Gln Val Val
                405                 410                 415
Phe Arg Asn Gly Glu Arg Met Gly Thr Ile Lys Phe Thr Gln Phe Gln
            420                 425                 430
Asp Ser Arg Glu Val Lys Val Gly Glu Tyr Asn Ala Val Ala Asp Thr
        435                 440                 445
Leu Glu Ile Ile Asn Asp Thr Ile Arg Phe Gln Gly Ser Glu Pro Pro
    450                 455                 460
Lys Asp Lys Thr Ile Ile Leu Glu Gln Leu Arg Lys Ile Ser Leu Pro
465                 470                 475                 480
Leu Tyr Ser Ile Leu Ser Ala Leu Thr Ile Leu Gly Met Ile Met Ala
                485                 490                 495
Ser Ala Phe Leu Phe Phe Asn Ile Lys Asn Arg Asn Gln Lys Leu Ile
            500                 505                 510
Lys Met Ser Ser Pro Tyr Met Asn Asn Leu Ile Ile Leu Gly Gly Met
        515                 520                 525
Leu Ser Tyr Ala Ser Ile Phe Leu Phe Gly Leu Asp Gly Ser Phe Val
    530                 535                 540
Ser Glu Lys Thr Phe Glu Thr Leu Cys Thr Val Arg Thr Trp Ile Leu
545                 550                 555                 560
Thr Val Gly Tyr Thr Thr Ala Phe Gly Ala Met Phe Ala Lys Thr Trp
                565                 570                 575
Arg Val His Ala Ile Phe Lys Asn Val Lys Met Lys Lys Lys Ile Ile
            580                 585                 590
Lys Asp Gln Lys Leu Leu Val Ile Val Gly Gly Met Leu Leu Ile Asp
        595                 600                 605
Leu Cys Ile Leu Ile Cys Trp Gln Ala Val Asp Pro Leu Arg Arg Thr
    610                 615                 620
Val Glu Lys Tyr Ser Met Glu Pro Asp Pro Ala Gly Arg Asp Ile Ser
625                 630                 635                 640
Ile Arg Pro Leu Leu Glu His Cys Glu Asn Thr His Met Thr Ile Trp
                645                 650                 655
Leu Gly Ile Val Tyr Ala Tyr Lys Gly Leu Leu Met Leu Phe Gly Cys
            660                 665                 670
Phe Leu Ala Trp Glu Thr Arg Asn Val Ser Ile Pro Ala Leu Asn Asp
        675                 680                 685
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Ser Lys Tyr Ile Gly Met Ser Val Tyr Asn Val Gly Ile Met Cys Ile
    690                 695                 700
Ile Gly Ala Ala Val Ser Phe Leu Thr Arg Asp Gln Pro Asn Val Gln
705                 710                 715                 720
Phe Cys Ile Val Ala Leu Val Ile Ile Phe Cys Ser Thr Ile Thr Leu
                725                 730                 735
Cys Leu Val Phe Val Pro Lys Leu Ile Thr Leu Arg Thr Asn Pro Asp
            740                 745                 750
Ala Ala Thr Gln Asn Arg Arg Phe Gln Phe Thr Gln Asn Gln Lys Lys
        755                 760                 765
Glu Asp Ser Lys Thr Ser Thr Ser Val Thr Ser Val Asn Gln Ala Ser
    770                 775                 780
Thr Ser Arg Leu Glu Gly Leu Gln Ser Glu Asn His Arg Leu Arg Met
785                 790                 795                 800
Lys Ile Thr Glu Leu Asp Lys Asp Leu Glu Glu Val Thr Met Gln Leu
                805                 810                 815
Gln Asp Thr Pro Glu Lys Thr Thr Tyr Ile Lys Gln Asn His Tyr Gln
            820                 825                 830
Glu Leu Asn Asp Ile Leu Asn Leu Gly Asn Phe Thr Glu Ser Thr Asp
        835                 840                 845
Gly Gly Lys Ala Ile Leu Lys Asn His Leu Asp Gln Asn Pro Gln Leu
    850                 855                 860
Gln Trp Asn Thr Thr Glu Pro Ser Arg Thr Cys Lys Asp Pro Ile Glu
865                 870                 875                 880
Asp Ile Asn Ser Pro Glu His Ile Gln Arg Arg Leu Ser Leu Gln Leu
                885                 890                 895
Pro Ile Leu His His Ala Tyr Leu Pro Ser Ile Gly Gly Val Asp Ala
            900                 905                 910
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<210> 6
<211> 20
<212> DNA
<213> Homo Sapiens

<400> 6
ggatccatca aggccaaaga 20

<210> 7
<211> 19
<212> DNA
<213> Homo Sapiens

<400> 7
gccgctgtct ccttcctga 19

<210> 8
<211> 21
<212> DNA
<213> Homo Sapiens

<400> 8
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<213> Homo Sapiens

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<400> 12
cctcgccata cagaactcc 19

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<211> 20
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<213> Homo Sapiens

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<212> DNA
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35 40 45
Ala Val Ala Val Ala Asn Lys Val Val Asn Asp Gly Val Lys Phe Val
50 55 60
Val Gly His Val Cys Ser Ser Ser Thr Gln Pro Ala Thr Asp Ile Tyr
65 70 75 80
Glu Asp Glu Gly Val Leu Met Ile Thr Pro Ser Ala Thr Ala Pro Glu
85 90 95
Ile Thr Ser Arg Gly Tyr Lys Leu Ile Phe Arg Thr Ile Gly Leu Asp
100 105 110
Asn Met Gln Gly Pro Val Ala Gly Lys Phe Ile Ala Glu Arg Tyr Lys
115 120 125
Val Lys Thr Ile Ala Val Leu His Asp Lys Gln Gln Tyr Gly Glu Gly
130 135 140
Ile Ala Thr Glu Val Lys Lys Thr Val Glu Asp Ala Gly Ile Lys Val
145 150 155 160
Ala Val Phe Glu Gly Leu Asn Ala Gly Asp Lys Asp Phe Asn Ala Leu
165 170 175
Ile Ser Lys Leu Lys Lys Ala Gly Val Gln Phe Val Tyr Phe Gly Gly
180 185 190
Tyr His Pro Glu Met
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35 40 45
Glu Arg Arg Ala Val Tyr Ile Gly Ala Leu Phe Pro Met Ser Gly Gly
50 55 60
Trp Pro Gly Gly Gln Ala Cys Gln Pro Ala Val Glu Met Ala Leu Glu
65 70 75 80

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Asp Val Asn Ser Arg Arg Asp Ile Leu Pro Asp Tyr Glu Leu Lys Leu
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Ile His His Asp Ser Lys Cys Asp Pro Gly Gln Ala Thr Lys Tyr Leu
            100                 105                 110
Tyr Glu Leu Leu Tyr Asn Asp Pro Ile Lys Ile Ile Leu Met Pro Gly
        115                 120                 125
Cys Ser Ser Val Ser Thr Leu Val Ala Glu Ala Ala Arg Met Trp Asn
    130                 135                 140
Leu Ile Val Leu Ser Tyr Gly Ser Ser Ser Pro Ala Leu Ser Asn Arg
145                 150                 155                 160
Gln Arg Phe Pro Thr Phe Phe Arg Thr His Pro Ser Ala Thr Leu His
                165                 170                 175
Asn Pro Thr Arg Val Lys Leu Phe Glu Lys Trp Gly Trp Lys Lys Ile
            180                 185                 190
Ala Thr Ile Gln Gln Thr Thr Glu Val Phe Thr Ser Thr Leu Asp Asp
        195                 200                 205
Leu Glu Glu Arg Val Lys Glu Ala Gly Ile Glu Ile Thr Phe Arg Gln
    210                 215                 220
Ser Phe Phe Ser Asp Pro Ala Val Pro Val Lys Asn Leu Lys Arg Gln
225                 230                 235                 240
Asp Ala Arg Ile Ile Val Gly Leu Phe Tyr Glu Thr Glu Ala Arg Lys
                245                 250                 255
Val Phe Cys Glu Val Tyr Lys Glu Arg Leu Phe Gly Lys Lys Tyr Val
            260                 265                 270
Trp Phe Leu Ile Gly Trp Tyr Ala Asp Asn Trp Phe Lys Thr Tyr Asp
        275                 280                 285
Pro Ser Ile Asn Cys Thr Val Glu Glu Met Thr Glu Ala Val Glu Gly
    290                 295                 300
His Ile Thr Thr Glu Ile Val Met Leu Asn Pro Ala Asn Thr Arg Ser
305                 310                 315                 320
Ile Ser Asn Met Thr Ser Gln Glu Phe Val Glu Lys Leu Thr Lys Arg
                325                 330                 335
Leu Lys Arg His Pro Glu Glu Thr Gly Gly Phe Gln Glu Ala Pro Leu
            340                 345                 350
Ala Tyr Asp Ala Ile Trp Ala Leu Ala Leu Ala Leu Asn Lys Thr Ser
        355                 360                 365
Gly Gly Gly Gly Arg Ser Gly Val Arg Leu Glu Asp Phe Asn Tyr Asn
    370                 375                 380
Asn Gln Thr Ile Thr Asp Gln Ile Tyr Arg Ala Met Asn Ser Ser Ser
385                 390                 395                 400
Phe Glu Gly Val Ser Gly His Val Val Phe Asp Ala Ser Gly Ser Arg
                405                 410                 415
Met Ala Trp Thr Leu Ile Glu Gln Leu Gln Gly Gly Ser Tyr Lys Lys
            420                 425                 430
Ile Gly Tyr Tyr Asp Ser Thr Lys Asp Asp Leu Ser Trp Ser Lys Thr
        435                 440                 445
Asp Lys Trp Ile Gly Gly Ser Pro Pro Ala Asp Gln Thr Leu Val Ile
    450                 455                 460
Lys Thr Phe Arg Phe Leu Ser Gln Lys Leu Phe Ile Ser Val Ser Val
465                 470                 475                 480
Leu Ser Ser Leu Gly Ile Val Leu Ala Val Val Cys Leu Ser Phe Asn
                485                 490                 495
Ile Tyr Asn Ser His Val Arg Tyr Ile Gln Asn Ser Gln Pro Asn Leu
            500                 505                 510
Asn Asn Leu Thr Ala Val Gly Cys Ser Leu Ala Leu Ala Ala Val Phe
        515                 520                 525
Pro Leu Gly Leu Asp Gly Tyr His Ile Gly Arg Ser Gln Phe Pro Phe
    530                 535                 540
Val Cys Gln Ala Arg Leu Trp Leu Leu Gly Leu Gly Phe Ser Leu Gly
545                 550                 555                 560
Tyr Gly Ser Met Phe Thr Lys Ile Trp Trp Val His Thr Val Phe Thr
                565                 570                 575
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Leu Tyr Ala Thr Val Gly Leu Leu Val Gly Met Asp Val Leu Thr Leu
595 600 605
Ala Ile Trp Gln Ile Val Asp Pro Leu His Arg Thr Ile Glu Thr Phe
610 615 620
Ala Lys Glu Glu Pro Lys Glu Asp Ile Asp Val Ser Ile Leu Pro Gln
625 630 635 640
Leu Glu His Cys Ser Ser Lys Lys Met Asn Thr Trp Leu Gly Ile Phe
645 650 655
Tyr Gly Tyr Lys Gly Leu Leu Leu Leu Leu Gly Ile Phe Leu Ala Tyr
660 665 670
Glu Thr Lys Ser Val Ser Thr Glu Lys Ile Asn Asp His Arg Ala Val
675 680 685
Gly Met Ala Ile Tyr Asn Val Ala Val Leu Cys Leu Ile Thr Ala Pro
690 695 700
Val Thr Met Ile Leu Ser Ser Gln Gln Asp Ala Ala Phe Ala Phe Ala
705 710 715 720
Ser Leu Ala Ile Val Phe Ser Ser Tyr Ile Thr Leu Val Val Leu Phe
725 730 735
Val Pro Lys Met Arg Arg Leu Ile Thr Arg Gly Glu Trp Gln Ser Glu
740 745 750
Thr Gln Asp Thr Met Lys Thr Gly Ser Ser Thr Asn Asn Asn Glu Glu
755 760 765
Glu Lys Ser Arg Leu Leu Glu Lys Glu Asn Arg Glu Leu Glu Lys Ile
770 775 780
Ile Ala Glu Lys Glu Glu Arg Val Ser Glu Leu Arg His Gln Leu Gln
785 790 795 800
Ser Arg Gln Gln Leu Arg Ser Arg Arg His Pro Pro Thr Pro Pro Asp
805 810 815
Pro Ser Gly Gly Leu Pro Arg Gly Pro Ser Glu Pro Pro Asp Arg Leu
820 825 830
Ser Cys Asp Gly Ser Arg Val His Leu Leu Tyr Lys
835 840

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35 40 45
Leu Met Pro Leu Thr Ser Ile Met Gly Leu Met Pro Leu Thr Lys Glu
50 55 60
Val Ala Lys Gly Ser Ile Gly Arg Gly Val Leu Pro Ala Val Glu Leu
65 70 75 80
Ala Ile Glu Gln Ile Arg Asn Glu Ser Leu Leu Arg Pro Tyr Phe Leu
85 90 95
Asp Leu Arg Leu Tyr Asp Thr Glu Cys Asp Asn Ala Lys Gly Leu Lys
100 105 110
Ala Phe Tyr Asp Ala Ile Lys Tyr Gly Pro Asn His Leu Met Val Phe
115 120 125
Gly Gly Val Cys Pro Ser Val Thr Ser Ile Ile Ala Glu Ser Leu Gln
130 135 140
Gly Trp Asn Leu Val Gln Leu Ser Phe Ala Ala Thr Thr Pro Val Leu
145 150 155 160
Ala Asp Lys Lys Lys Tyr Pro Tyr Phe Phe Arg Thr Val Pro Ser Asp

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            180                 185                 190
Lys Arg Val Gly Thr Leu Thr Gln Asp Val Gln Arg Phe Ser Glu Val
        195                 200                 205
Arg Asn Asp Leu Thr Gly Val Leu Tyr Gly Glu Asp Ile Glu Ile Ser
    210                 215                 220
Asp Thr Glu Ser Phe Ser Asn Asp Pro Cys Thr Ser Val Lys Lys Leu
225                 230                 235                 240
Lys Gly Asn Asp Val Arg Ile Ile Leu Gly Gln Phe Asp Gln Asn Met
                245                 250                 255
Ala Ala Lys Val Phe Cys Cys Ala Tyr Glu Glu Asn Met Tyr Gly Ser
            260                 265                 270
Lys Tyr Gln Trp Ile Ile Pro Gly Trp Tyr Glu Pro Ser Trp Trp Glu
        275                 280                 285
Gln Val His Thr Glu Ala Asn Ser Ser Arg Cys Leu Arg Lys Asn Leu
    290                 295                 300
Leu Ala Ala Met Glu Gly Tyr Ile Gly Val Asp Phe Glu Pro Leu Ser
305                 310                 315                 320
Ser Lys Gln Ile Lys Thr Ile Ser Gly Lys Thr Pro Gln Gln Tyr Glu
                325                 330                 335
Arg Glu Tyr Asn Asn Lys Arg Ser Gly Val Gly Pro Ser Lys Phe His
            340                 345                 350
Gly Tyr Ala Tyr Asp Gly Ile Trp Val Ile Ala Lys Thr Leu Gln Arg
        355                 360                 365
Ala Met Glu Thr Leu His Ala Ser Ser Arg His Gln Arg Ile Gln Asp
    370                 375                 380
Phe Asn Tyr Thr Asp His Thr Leu Gly Arg Ile Ile Leu Asn Ala Met
385                 390                 395                 400
Asn Glu Thr Asn Phe Phe Gly Val Thr Gly Gln Val Val Phe Arg Asn
                405                 410                 415
Gly Glu Arg Met Gly Thr Ile Lys Phe Thr Gln Phe Gln Asp Ser Arg
            420                 425                 430
Glu Val Lys Val Gly Glu Tyr Asn Ala Val Ala Asp Thr Leu Glu Ile
        435                 440                 445
Ile Asn Asp Thr Ile Arg Phe Gln Gly Ser Glu Pro Pro Lys Asp Lys
    450                 455                 460
Thr Ile Ile Leu Glu Gln Leu Arg Lys Ile Ser Leu Pro Leu Tyr Ser
465                 470                 475                 480
Ile Leu Ser Ala Leu Thr Ile Leu Gly Met Ile Met Ala Ser Ala Phe
                485                 490                 495
Leu Phe Phe Asn Ile Lys Asn Arg Asn Gln Lys Leu Ile Lys Met Ser
            500                 505                 510
Ser Pro Tyr Met Asn Asn Leu Ile Ile Leu Gly Gly Met Leu Ser Tyr
        515                 520                 525
Ala Ser Ile Phe Leu Phe Gly Leu Asp Gly Ser Phe Val Ser Glu Lys
    530                 535                 540
Thr Phe Glu Thr Leu Cys Thr Val Arg Thr Trp Ile Leu Thr Val Gly
545                 550                 555                 560
Tyr Thr Thr Ala Phe Gly Ala Met Phe Ala Lys Thr Trp Arg Val His
                565                 570                 575
Ala Ile Phe Lys Asn Val Lys Met Lys Lys Lys Ile Ile Lys Asp Gln
            580                 585                 590
Lys Leu Leu Val Ile Val Gly Gly Met Leu Leu Ile Asp Leu Cys Ile
        595                 600                 605
Leu Ile Cys Trp Gln Ala Val Asp Pro Leu Arg Arg Thr Val Glu Lys
    610                 615                 620
Tyr Ser Met Glu Pro Asp Pro Ala Gly Arg Asp Ile Ser Ile Arg Pro
625                 630                 635                 640
Leu Leu Glu His Cys Glu Asn Thr His Met Thr Ile Trp Leu Gly Ile
                645                 650                 655
Val Tyr Ala Tyr Lys Gly Leu Leu Met Leu Phe Gly Cys Phe Leu Ala
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            660                 665                 670
Trp Glu Thr Arg Asn Val Ser Ile Pro Ala Leu Asn Asp Ser Lys Tyr
        675                 680                 685
Ile Gly Met Ser Val Tyr Asn Val Gly Ile Met Cys Ile Ile Gly Ala
    690                 695                 700
Ala Val Ser Phe Leu Thr Arg Asp Gln Pro Asn Val Gln Phe Cys Ile
705                 710                 715                 720
Val Ala Leu Val Ile Ile Phe Cys Ser Thr Ile Thr Leu Cys Leu Val
                725                 730                 735
Phe Val Pro Lys Leu Ile Thr Leu Arg Thr Asn Pro Asp Ala Ala Thr
            740                 745                 750
Gln Asn Arg Arg Phe Gln Phe Thr Gln Asn Gln Lys Lys Glu Asp Ser
        755                 760                 765
Lys Thr Ser Thr Ser Val Thr Ser Val Asn Gln Ala Ser Thr Ser Arg
    770                 775                 780
Leu Glu Gly Leu Gln Ser Glu Asn His Arg Leu Arg Met Lys Ile Thr
785                 790                 795                 800
Glu Leu Asp Lys Asp Leu Glu Glu Val Thr Met Gln Leu Gln Asp Thr
                805                 810                 815
Pro Glu Lys Thr Thr Tyr Ile Lys Gln Asn His Tyr Gln Glu Leu Asn
            820                 825                 830
Asp Ile Leu Asn Leu Gly Asn Phe Thr Glu Ser Thr Asp Gly Gly Lys
        835                 840                 845
Ala Ile Leu Lys Asn His Leu Asp Gln Asn Pro Gln Leu Gln Trp Asn
    850                 855                 860
Thr Thr Glu Pro Ser Arg Thr Cys Lys Asp Pro Ile Glu Asp Ile Asn
865                 870                 875                 880
Ser Pro Glu His Ile Gln Arg Arg Leu Ser Leu Gln Leu Pro Ile Leu
                885                 890                 895
His His Ala Tyr Leu Pro Ser Ile Gly Gly Val Asp Ala Ser Cys Val
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Ser Pro Cys Val Ser Pro Thr Ala Ser Pro Arg His Arg His Val Pro
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Pro Ser Phe Arg Val Met Val Ser Gly Leu
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<210> 19
<211> 2883
<212> DNA
<213> Mus musculus

<400> 19

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<212> PRT
<213> Mus musculus

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            20                  25                  30
His Pro Pro Trp Glu Gly Gly Ile Arg Tyr Arg Gly Leu Ile Arg Asp
        35                  40                  45
Gln Val Lys Ala Ile Asn Phe Leu Pro Val Asp Tyr Glu Ile Glu Tyr
    50                  55                  60
Val Cys Arg Gly Glu Arg Glu Val Val Gly Pro Lys Val Arg Lys Cys
65                  70                  75                  80
Leu Ala Asn Gly Ser Trp Thr Asp Met Asp Thr Pro Ser Arg Cys Val
                85                  90                  95
Arg Ile Cys Ser Lys Ser Tyr Leu Thr Leu Glu Asn Gly Lys Val Phe
            100                 105                 110
Leu Thr Gly Gly Asp Leu Pro Ala Leu Asp Gly Ala Arg Val Asp Phe
        115                 120                 125
Arg Cys Asp Pro Asp Phe His Leu Val Gly Ser Ser Arg Ser Ile Cys
    130                 135                 140
Ser Gln Gly Gln Trp Ser Thr Pro Lys Pro His Cys Gln Val Asn Arg
145                 150                 155                 160
Thr Pro His Ser Glu Arg Arg Ala Val Tyr Ile Gly Ala Leu Phe Pro
                165                 170                 175
Met Ser Gly Gly Trp Pro Gly Gly Gln Ala Cys Gln Pro Ala Val Glu
            180                 185                 190
Met Ala Leu Glu Asp Val Asn Ser Arg Arg Asp Ile Leu Pro Asp Tyr
        195                 200                 205
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Glu Leu Lys Leu Ile His His Asp Ser Lys Cys Asp Pro Gly Gln Ala
210 215 220
Thr Lys Tyr Leu Tyr Glu Leu Leu Tyr Asn Asp Pro Ile Lys Ile Ile
225 230 235 240
Leu Met Pro Gly Cys Ser Ser Val Ser Thr Leu Val Ala Glu Ala Ala
245 250 255
Arg Met Trp Asn Leu Ile Val Leu Ser Tyr Gly Ser Ser Ser Pro Ala
260 265 270
Leu Ser Asn Arg Gln Arg Phe Pro Thr Phe Phe Arg Thr His Pro Ser
275 280 285
Ala Thr Leu His Asn Pro Thr Arg Val Lys Leu Phe Glu Lys Trp Gly
290 295 300
Trp Lys Lys Ile Ala Thr Ile Gln Gln Thr Thr Glu Val Phe Thr Ser
305 310 315 320
Thr Leu Asp Asp Leu Glu Glu Arg Val Lys Glu Ala Gly Ile Glu Ile
325 330 335
Thr Phe Arg Gln Ser Phe Phe Ser Asp Pro Ala Val Pro Val Lys Asn
340 345 350
Leu Lys Arg Gln Asp Ala Arg Ile Ile Val Gly Leu Phe Tyr Glu Thr
355 360 365
Glu Ala Arg Lys Val Phe Cys Glu Val Tyr Lys Glu Arg Leu Phe Gly
370 375 380
Lys Lys Tyr Val Trp Phe Leu Ile Gly Trp Tyr Ala Asp Asn Trp Phe
385 390 395 400
Lys Thr Tyr Asp Pro Ser Ile Asn Cys Thr Val Glu Glu Met Thr Glu
405 410 415
Ala Val Glu Gly His Ile Thr Thr Glu Ile Val Met Leu Asn Pro Ala
420 425 430
Asn Thr Arg Ser Ile Ser Asn Met Thr Ser Gln Glu Phe Val Glu Lys
435 440 445
Leu Thr Lys Arg Leu Lys Arg His Pro Glu Glu Thr Gly Gly Phe Gln
450 455 460
Glu Ala Pro Leu Ala Tyr Asp Ala Ile Trp Ala Leu Ala Leu Ala Leu
465 470 475 480
Asn Lys Thr Ser Gly Gly Gly Gly Arg Ser Gly Val Arg Leu Glu Asp
485 490 495
Phe Asn Tyr Asn Asn Gln Thr Ile Thr Asp Gln Ile Tyr Arg Ala Met
500 505 510
Asn Ser Ser Ser Phe Glu Gly Val Ser Gly His Val Val Phe Asp Ala
515 520 525
Ser Gly Ser Arg Met Ala Trp Thr Leu Ile Glu Gln Leu Gln Gly Gly
530 535 540
Ser Tyr Lys Lys Ile Gly Tyr Tyr Asp Ser Thr Lys Asp Asp Leu Ser
545 550 555 560
Trp Ser Lys Thr Asp Lys Trp Ile Gly Gly Ser Pro Pro Ala Asp Gln
565 570 575
Thr Leu Val Ile Lys Thr Phe Arg Phe Leu Ser Gln Lys Leu Phe Ile
580 585 590
Ser Val Ser Val Leu Ser Ser Leu Gly Ile Val Leu Ala Val Val Cys
595 600 605
Leu Ser Phe Asn Ile Tyr Asn Ser His Ala Arg Tyr Ile Gln Asn Ser
610 615 620
Gln Pro Asn Leu Asn Asn Leu Thr Ala Val Gly Cys Ser Leu Ala Leu
625 630 635 640
Ala Val Val Phe Pro Leu Gly Leu Asp Gly Tyr His Ile Gly Arg Ser
645 650 655
Gln Phe Pro Phe Val Cys Gln Ala Arg Leu Trp Leu Leu Gly Leu Gly
660 665 670
Phe Ser Leu Gly Tyr Gly Ser Met Phe Thr Lys Ile Trp Trp Val His
675 680 685
Thr Val Phe Thr Lys Lys Glu Glu Lys Lys Glu Trp Arg Lys Thr Leu
690 695 700

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Glu Pro Trp Lys Leu Tyr Ala Thr Val Gly Leu Leu Val Gly Met Asp
705                 710                 715                 720
Val Leu Thr Leu Ala Ile Trp Gln Ile Val Asp Pro Leu His Arg Thr
                725                 730                 735
Ile Glu Thr Phe Ala Lys Glu Glu Pro Lys Glu Asp Ile Asp Val Ser
            740                 745                 750
Ile Leu Pro Gln Leu Glu His Cys Ser Ser Lys Lys Met Asn Thr Trp
        755                 760                 765
Leu Gly Ile Phe Tyr Gly Tyr Lys Gly Leu Leu Leu Leu Leu Gly Ile
    770                 775                 780
Phe Leu Ala Tyr Glu Thr Lys Ser Val Ser Thr Glu Lys Ile Asn Asp
785                 790                 795                 800
His Arg Ala Val Gly Met Ala Ile Tyr Asn Val Ala Val Leu Cys Leu
                805                 810                 815
Ile Thr Ala Pro Val Thr Met Ile Leu Ser Ser Gln Gln Asp Ala Ala
            820                 825                 830
Phe Ala Phe Ala Ser Leu Ala Ile Val Phe Ser Ser Tyr Ile Thr Leu
        835                 840                 845
Val Val Leu Phe Val Pro Lys Met Arg Arg Leu Ile Thr Arg Gly Glu
    850                 855                 860
Trp Gln Ser Glu Thr Gln Asp Thr Met Lys Thr Gly Ser Ser Thr Asn
865                 870                 875                 880
Asn Asn Glu Glu Glu Lys Ser Arg Leu Leu Glu Lys Glu Asn Arg Glu
                885                 890                 895
Leu Glu Lys Ile Ile Ala Glu Lys Glu Glu Arg Val Ser Glu Leu Arg
            900                 905                 910
His Gln Leu Gln Ser Arg Gln Gln Leu Arg Ser Arg Arg His Pro Pro
        915                 920                 925
Thr Pro Pro Asp Pro Ser Gly Gly Leu Pro Arg Gly Pro Ser Glu Pro
    930                 935                 940
Pro Asp Arg Leu Ser Cys Asp Gly Ser Arg Val His Leu Leu Tyr Lys
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<210> 21
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<212> PRT
<213> Homo Sapiens

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            20                  25                  30
Ile His Pro Pro Trp Glu Gly Gly Ile Arg Tyr Arg Gly Leu Thr Arg
        35                  40                  45
Asp Gln Val Lys Ala Ile Asn Phe Leu Pro Val Asp Tyr Glu Ile Glu
    50                  55                  60
Tyr Val Cys Arg Gly Glu Arg Glu Val Val Gly Pro Lys Val Arg Lys
65                  70                  75                  80
Cys Leu Ala Asn Gly Ser Trp Thr Asp Met Asp Thr Pro Ser Arg Cys
                85                  90                  95
Val Arg Ile Cys Ser Lys Ser Tyr Leu Thr Leu Glu Asn Gly Lys Val
            100                 105                 110
Phe Leu Thr Gly Gly Asp Leu Pro Ala Leu Asp Gly Ala Arg Ala Asp
        115                 120                 125
Phe Arg Cys Asp Pro Asp Phe His Leu Val Gly Ser Ser Arg Ser Ile
    130                 135                 140
Cys Ser Gln Gly Gln Trp Ser Thr Pro Lys Pro His Cys Gln Val Asn
145                 150                 155                 160
Arg Thr Pro His Ser Glu Arg Arg Ala Val Tyr Ile Gly Ala Leu Phe
                165                 170                 175
Pro Met Ser Gly Gly Trp Pro Gly Gly Gln Ala Cys Gln Pro Ala Val
```

```
            180                 185                 190
Glu Met Ala Leu Glu Asp Val Asn Ser Arg Arg Asp Ile Leu Pro Asp
        195                 200                 205
Tyr Glu Leu Lys Leu Ile His His Asp Ser Lys Cys Asp Pro Gly Gln
    210                 215                 220
Ala Thr Lys Tyr Leu Tyr Glu Leu Leu Tyr Asn Asp Pro Ile Lys Ile
225                 230                 235                 240
Ile Leu Met Pro Gly Cys Ser Ser Val Ser Thr Leu Val Ala Glu Ala
                245                 250                 255
Ala Arg Met Trp Asn Leu Ile Val Leu Ser Tyr Gly Ser Ser Ser Pro
            260                 265                 270
Ala Leu Ser Asn Arg Gln Arg Phe Pro Thr Phe Phe Arg Thr His Pro
        275                 280                 285
Ser Ala Thr Leu His Asn Pro Thr Arg Val Lys Leu Phe Glu Lys Trp
    290                 295                 300
Gly Trp Lys Lys Ile Ala Thr Ile Gln Gln Thr Thr Glu Val Phe Thr
305                 310                 315                 320
Ser Thr Leu Asp Asp Leu Glu Glu Arg Val Lys Glu Ala Gly Ile Glu
                325                 330                 335
Ile Thr Phe Arg Gln Ser Phe Phe Ser Asp Pro Ala Val Pro Val Lys
            340                 345                 350
Asn Leu Lys Arg Gln Asp Ala Arg Ile Ile Val Gly Leu Phe Tyr Glu
        355                 360                 365
Thr Glu Ala Arg Lys Val Phe Cys Glu Val Tyr Lys Glu Arg Leu Phe
    370                 375                 380
Gly Lys Lys Tyr Val Trp Phe Leu Ile Gly Trp Tyr Ala Asp Asn Trp
385                 390                 395                 400
Phe Lys Ile Tyr Asp Pro Ser Ile Asn Cys Thr Val Asp Glu Met Thr
                405                 410                 415
Glu Ala Val Glu Gly His Ile Thr Thr Glu Ile Val Met Leu Asn Pro
            420                 425                 430
Ala Asn Thr Arg Ser Ile Ser Asn Met Thr Ser Gln Glu Phe Val Glu
        435                 440                 445
Lys Leu Thr Lys Arg Leu Lys Arg His Pro Glu Glu Thr Gly Gly Phe
    450                 455                 460
Gln Glu Ala Pro Leu Ala Tyr Asp Ala Ile Trp Ala Leu Ala Leu Ala
465                 470                 475                 480
Leu Asn Lys Thr Ser Gly Gly Gly Gly Arg Ser Gly Val Arg Leu Glu
                485                 490                 495
Asp Phe Asn Tyr Asn Asn Gln Thr Ile Thr Asp Gln Ile Tyr Arg Ala
            500                 505                 510
Met Asn Ser Ser Ser Phe Glu Gly Val Ser Gly His Val Val Phe Asp
        515                 520                 525
Ala Ser Gly Ser Arg Met Ala Trp Thr Leu Ile Glu Gln Leu Gln Gly
    530                 535                 540
Gly Ser Tyr Lys Lys Ile Gly Tyr Tyr Asp Ser Thr Lys Asp Asp Leu
545                 550                 555                 560
Ser Trp Ser Lys Thr Asp Lys Trp Ile Gly Gly Ser Pro Pro Ala Asp
                565                 570                 575
Gln Thr Leu Val Ile Lys Thr Phe Arg Phe Leu Ser Gln Lys Leu Phe
            580                 585                 590
Ile Ser Val Ser Val Leu Ser Ser Leu Gly Ile Val Leu Ala Val Val
        595                 600                 605
Cys Leu Ser Phe Asn Ile Tyr Asn Ser His Val Arg Tyr Ile Gln Asn
    610                 615                 620
Ser Gln Pro Asn Leu Asn Asn Leu Thr Ala Val Gly Cys Ser Leu Ala
625                 630                 635                 640
Leu Ala Ala Val Phe Pro Leu Gly Leu Asp Gly Tyr His Ile Gly Arg
                645                 650                 655
Asn Gln Phe Pro Phe Val Cys Gln Ala Arg Leu Trp Leu Leu Gly Leu
            660                 665                 670
Gly Phe Ser Leu Gly Tyr Gly Ser Met Phe Thr Lys Ile Trp Trp Val
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675 680 685
His Thr Val Phe Thr Lys Lys Glu Glu Lys Lys Glu Trp Arg Lys Thr
690 695 700
Leu Glu Pro Trp Lys Leu Tyr Ala Thr Val Gly Leu Leu Val Gly Met
705 710 715 720
Asp Val Leu Thr Leu Ala Ile Trp Gln Ile Val Asp Pro Leu His Arg
725 730 735
Thr Ile Glu Thr Phe Ala Lys Glu Glu Pro Lys Glu Asp Ile Asp Val
740 745 750
Ser Ile Leu Pro Gln Leu Glu His Cys Ser Ser Arg Lys Met Asn Thr
755 760 765
Trp Leu Gly Ile Phe Tyr Gly Tyr Lys Gly Leu Leu Leu Leu Leu Gly
770 775 780
Ile Phe Leu Ala Tyr Glu Thr Lys Ser Val Ser Thr Glu Lys Ile Asn
785 790 795 800
Asp His Arg Ala Val Gly Met Ala Ile Tyr Asn Val Ala Val Leu Cys
805 810 815
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885 890 895
Glu Leu Glu Lys Ile Ile Ala Glu Lys Glu Glu Arg Val Ser Glu Leu
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Arg His Gln Leu Gln Ser Arg Gln Gln Leu Arg Ser Arg Arg His Pro
915 920 925
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<211> 2886
<212> DNA
<213> Homo Sapiens

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<212> DNA
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ccgctc

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<213> Caenorabditis elegans

<400> 42

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            20                  25                  30
Glu Ser Gly Ser Gly Gly Trp Ala Gly Gly Glu Ala Cys Leu Pro Ala
        35                  40                  45
Val Glu Met Ala Leu Lys Asp Val Asn Ser Arg Leu Asp Ile Leu Pro
    50                  55                  60
Gly Tyr Val Leu Asn Met Thr Asn His Asn Ser Gln Cys Gln Pro Gly
65                  70                  75                  80
Leu Ala Met Gln Gln Leu Tyr Asp Phe Leu Tyr Lys Pro Pro Thr Lys
                85                  90                  95
Leu Met Leu Leu Thr Gly Cys Ser Pro Val Thr Thr Val Ile Ala Glu
            100                 105                 110
Ala Ala Pro Val Trp Lys Leu Val Val Leu Ser Tyr Gly Gly Ser Ser
        115                 120                 125
Pro Ala Leu Ser Asn Arg Asn Arg Phe Pro Thr Leu Phe Arg Thr His
    130                 135                 140
Pro Ser Ala Asn Met Gln Asn Pro Thr Arg Ile His Ile Met Glu Lys
145                 150                 155                 160
Phe Lys Trp Lys Arg Phe Thr Ile Leu Met Ser Val Glu Glu Val Phe
                165                 170                 175
Val Thr Thr Ala Lys Asp Leu Glu Val Ser Glu Arg Lys Lys Gly Ile
            180                 185                 190
Lys Val Asp Arg Gln Ser Phe Tyr Gly Asp Pro Thr Asp Ala Met Lys
        195                 200                 205
Thr Leu Gln Arg Gln Asp Ala Arg Ile Ile Val Gly Leu Phe Tyr Val
    210                 215                 220
Thr Glu Ala Arg Lys Val Leu Cys Gln Ala Tyr His His Gly Leu Tyr
225                 230                 235                 240
Gly Arg Arg Tyr Val Trp Phe Phe Ile Gly Trp Tyr Ala Asp Thr Trp
                245                 250                 255
Tyr Ile Pro Pro Pro Glu Glu His Leu Asn Cys Thr Ala Glu Gln Met
            260                 265                 270
Thr Glu Ala Ala Glu Tyr His Phe Thr Thr Glu Ser Val Met Leu Ser
        275                 280                 285
Arg Asp Asn Ile Pro Ala Ile Ser Glu Met Thr Gly Met Gln Phe Gln
    290                 295                 300
Gln Arg Leu Thr Gln Tyr Phe Gln Lys Asp Thr Ala Asn Val Gly Gly
305                 310                 315                 320
Phe Pro Glu Ala Pro Leu Ala Tyr Asp Ala Val Trp Ala Leu Ala Leu
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Ala Phe Asn Cys Thr Arg Asn Asn Leu Pro Ser His Ile Arg Leu Glu
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            340                 345                 350
Asn Phe Thr Tyr Asp Asn Lys Val Ile Ala Asp Thr Leu Phe Gln Cys
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Val Lys Asn Thr Ser Phe Arg Gly Val Ser Gly Lys Val Met Phe Ser
    370                 375                 380
Asp Ser Gly Asp Arg Ile Ala Arg Thr Gln Ile Glu Gln Met Gln Gly
385                 390                 395                 400
Gly Lys Tyr Lys Ile Met Gly Tyr Tyr Asp Thr Thr Ser Gly Asp Leu
                405                 410                 415
Glu Trp Tyr Asn Lys Glu Gln Trp Leu Asn Gly Lys Gly Pro Pro Pro
            420                 425                 430
Asp Ser Thr Val Ile Lys Thr Phe Asn Ser Tyr Ser Asp Phe Leu Ile
        435                 440                 445
Phe Ser Ser Thr Ile Leu Gln Tyr Phe Ser Gln Phe Leu Ala Leu Leu
    450                 455                 460
His Val Ser Ser Phe Thr Phe Leu His Lys Asn Ile Ile Phe Gln Ser
465                 470                 475                 480
Gln Pro Glu Cys Asn Asn Ile Leu Leu Ile Gly Cys Ser Leu Cys Leu
                485                 490                 495
Phe Ser Leu Phe Leu Ile Gly Leu Pro Ser Asp Asp Ile Ser Ile Ser
            500                 505                 510
Glu Ser Leu Phe Pro Leu Leu Cys His Ala Arg Val Thr Ile Leu Leu
        515                 520                 525
Phe Gly Phe Thr Phe Ala Tyr Gly Ser Met Phe Ala Lys Val Trp Ile
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Val His Arg Met Gly Ala Thr Glu Asn Gln Gln Leu Ala Ser Arg Gln
545                 550                 555                 560
Pro Ile Ser Ser Ser Lys Phe Tyr Val Ile Val Ala Ala Leu Thr Ala
                565                 570                 575
Val Asp Val Phe Val Cys Phe Val Trp Val Leu Ile Asp Pro Leu His
            580                 585                 590
Leu Thr Glu Gln Lys Phe Pro Leu Phe Ala Asp Ser Glu Glu Asp Glu
        595                 600                 605
Met Ile Met Pro Val Leu Gln Gln Cys Gln Ser Asn Gln Gln Glu Val
    610                 615                 620
Trp Ile Gly Ile Ile Met Gly Phe Lys Cys Leu Leu Leu Val Phe Gly
625                 630                 635                 640
Thr Phe Leu Ser Tyr Glu Thr Arg Asn Leu Lys Leu Arg Phe Ile Asn
                645                 650                 655
Asp Ser Arg Phe Val Gly Leu Ala Ile Tyr Asn Val Ala Val Met Thr
            660                 665                 670
Leu Val Thr Ala Pro Val Val Thr Leu Leu Ile His Gly Lys Val Asp
        675                 680                 685
Ala Asn Phe Ala Phe Ile Ser Leu Thr Ser Val Leu Ile Cys Thr Tyr
    690                 695                 700
Ile Ser Val Gly Leu Ile Tyr Gly Pro Lys Ile Arg His Ile Ile Lys
705                 710                 715                 720
Val Pro Pro Ser Ala Asp Glu Ile Gln Leu Asn Gly Asn Val Gly Pro
                725                 730                 735
Gly Val Met Ser Lys Val Asp Gln Lys Arg Tyr Asp Met Leu Lys Lys
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<211> 659
<212> PRT
<213> Caenorabditis elegans

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Phe Thr Val Gln Lys Glu Gly Phe Pro Asp Ala Leu Pro Ala Ile Arg
            20                  25                  30
Thr Ala Leu Ser His Val His Ser Arg Ser Cys Ile Leu Gln Gly Tyr
        35                  40                  45
Arg Leu Glu Met Ile Val Lys Asp Thr His Cys Lys Thr Ser Gln Gly
    50                  55                  60
Met Lys Ala Leu Phe Asp Leu Ile Ala Ser Arg Pro Arg Pro Val Ala
65                  70                  75                  80
Ile Leu Gly Gly Gln Cys Thr Glu Val Asn Glu Pro Ile Ala Met Ala
                85                  90                  95
Leu Lys Tyr Trp Gln Ile Val Gln Leu Ser Tyr Ala Glu Thr His Ala
            100                 105                 110
Met Asn Gly Gln Leu Gln Leu Phe Thr Thr Phe Phe Arg Val Val Pro
        115                 120                 125
Gly Ser Arg Asn Thr Asn Met Ala Lys Cys Lys Phe Val Asn His Phe
    130                 135                 140
Gly Trp Lys Arg Val Gly Thr Val Lys Gln Asn Asp Gln Pro Arg Tyr
145                 150                 155                 160
Ala Leu Val Arg Asp Val Arg Ile Ile Leu Val Asp Val Asp Glu Glu
                165                 170                 175
Met Ala Ala Thr Val Leu Cys Ala Gly Tyr His Arg Gly Met Tyr Gly
            180                 185                 190
Asp Asn Tyr Val Trp Ile Leu Pro Gly Tyr His Ser Asp Arg Trp Leu
        195                 200                 205
Asn Gln Thr His Asp Asn Cys Thr Val Glu Glu Met Arg Glu Ala Ala
    210                 215                 220
Lys Asn His Phe Ser Val Glu Phe Ala Leu Thr Arg Arg Asp Val Asp
225                 230                 235                 240
Thr Lys Ile Val Gly Asn Thr Val Ser Pro Tyr Val Thr Leu Asn Leu
                245                 250                 255
Phe Gln Arg Ala Gly Asp Val Trp Asn Glu Ile Thr Gln Leu Asp Pro
            260                 265                 270
Asn Asn Thr Trp Arg Gly Tyr Leu Tyr Asp Gly Leu Trp Thr Leu Ala
        275                 280                 285
Ile Ala Leu Ser His Ser Met Gly Asp Asn Ala Glu Phe Ser His His
    290                 295                 300
Lys Met Met Glu Ala Ile Asp Asn Ser Ser Phe Gln Gly Leu Thr Gly
305                 310                 315                 320
Lys Val Lys Phe Ala Asn Asn Glu Arg Leu Gly Leu Val Asp Ile Lys
                325                 330                 335
Gln Trp Ser Asp Gly Gln Tyr Val Pro Phe Ala Val Tyr Asp Gly Ala
            340                 345                 350
Asp Asp Glu Phe Lys Ile Ile Asp Ser Thr Thr Lys Gly Trp Ser Pro
        355                 360                 365
Pro Leu Asp Ser Thr Ile Thr Glu Arg Arg Arg Glu His Ile Ser Ser
    370                 375                 380
Ile Leu Phe Leu Ala Met Ser Leu Leu Ala Leu Ile Gly Ile Phe Leu
385                 390                 395                 400
Ala Leu Ile Phe Leu Leu Ile Asn Phe Arg Tyr Arg Asn His Arg Phe
                405                 410                 415
Ile Lys Met Ser Ser Pro Asn Leu Asn Asn Ile Ile Ile Ala Gly Ser
            420                 425                 430
Ile Cys Thr Phe Ala Ser Val Ile Met Leu Gly Leu Asp Thr Arg Ile
        435                 440                 445
Val Ser Pro Asp Val Phe Val Trp Leu Cys Tyr Thr Lys Thr Trp Thr
    450                 455                 460
Leu Cys Ile Gly Phe Thr Leu Ser Phe Gly Ala Met Phe Ser Lys Thr
465                 470                 475                 480
Trp Arg Val His Ser Ile Phe Thr Asn Ile Arg Met Asp Arg Lys Ala
                485                 490                 495
Ile Lys Asp Ser Lys Leu Phe Ile Ile Leu Gly Ile Leu Leu Phe Ile
            500                 505                 510
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Asp Ile Cys Val Leu Val Thr Trp Ala Phe Val Ser Pro Phe Ser Tyr
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Thr Val Glu Gln Phe Lys Phe Leu Ile Phe Ser Ala Arg Arg Asn Ile
530 535 540
Val Ile Ile Pro Glu Val Glu Lys Cys Asn Ser Ser His Ser Gly Val
545 550 555 560
Phe Gln Ala Val Leu Tyr Ala Val Lys Gly Val Leu Met Ile Leu Gly
565 570 575
Cys Phe Leu Ala Trp Glu Thr Arg His Val Asn Val Pro Ala Leu Asn
580 585 590
Asp Ser Lys Tyr Ile Gly Thr Ser Val Tyr Cys Cys Val Val Met Ser
595 600 605
Val Leu Gly Leu Ser Thr Ser Val Ile Leu Gln Glu Arg Val Asn Glu
610 615 620
Met Phe Ser Leu Ala Ser Phe Phe Val Ile Phe Ser Thr Thr Leu Thr
625 630 635 640
Leu Cys Leu Val Phe Val Pro Lys Val Arg Phe Leu Glu Leu Cys Cys
645 650 655
Ile Gly Ser

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<211> 585
<212> PRT
<213> Homo Sapiens

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Ser Ser Gln Arg Ser Val Ala Arg Met Asp Gly Asp Val Ile Ile Gly
35 40 45
Ala Leu Phe Ser Val His His Gln Pro Pro Ala Glu Lys Val Pro Glu
50 55 60
Arg Lys Cys Gly Glu Ile Arg Glu Gln Tyr Gly Ile Gln Arg Val Glu
65 70 75 80
Ala Met Phe His Thr Leu Asp Lys Ile Asn Ala Asp Pro Val Leu Leu
85 90 95
Pro Asn Ile Thr Leu Gly Ser Glu Ile Arg Asp Ser Cys Trp His Ser
100 105 110
Ser Val Ala Leu Glu Gln Ser Ile Glu Phe Ile Arg Asp Ser Leu Ile
115 120 125
Ser Ile Arg Asp Glu Lys Asp Gly Ile Asn Arg Cys Leu Pro Asp Gly
130 135 140
Gln Ser Leu Pro Pro Gly Arg Thr Lys Lys Pro Ile Ala Gly Val Ile
145 150 155 160
Gly Pro Gly Ser Ser Ser Val Ala Ile Gln Val Gln Asn Leu Leu Gln
165 170 175
Leu Phe Asp Ile Pro Gln Ile Ala Tyr Ser Ala Thr Ser Ile Asp Leu
180 185 190
Ser Asp Lys Thr Leu Tyr Lys Tyr Phe Leu Arg Val Val Pro Ser Asp
195 200 205
Thr Leu Gln Ala Arg Ala Met Leu Asp Ile Val Lys Arg Tyr Asn Trp
210 215 220
Thr Tyr Val Ser Ala Val His Thr Glu Gly Asn Tyr Gly Glu Ser Gly
225 230 235 240
Met Asp Ala Phe Lys Glu Leu Ala Ala Gln Glu Gly Leu Cys Ile Ala
245 250 255
His Ser Asp Lys Ile Tyr Ser Asn Ala Gly Glu Lys Ser Phe Asp Arg
260 265 270
Leu Leu Arg Lys Leu Arg Glu Arg Leu Pro Lys Ala Arg Val Val Val

275 280 285
Cys Phe Cys Glu Gly Met Thr Val Arg Gly Leu Leu Ser Ala Met Arg
290 295 300
Arg Leu Gly Val Val Gly Glu Phe Ser Leu Ile Gly Ser Asp Gly Trp
305 310 315 320
Ala Asp Arg Asp Glu Val Ile Glu Gly Tyr Glu Val Glu Ala Asn Gly
325 330 335
Gly Ile Thr Ile Lys Leu Gln Ser Pro Glu Val Arg Ser Phe Asp Asp
340 345 350
Tyr Phe Leu Lys Leu Arg Leu Asp Thr Asn Thr Arg Asn Pro Trp Phe
355 360 365
Pro Glu Phe Trp Gln His Arg Phe Gln Cys Arg Leu Pro Gly His Leu
370 375 380
Leu Glu Asn Pro Asn Phe Lys Arg Ile Cys Thr Gly Asn Glu Ser Leu
385 390 395 400
Glu Glu Asn Tyr Val Gln Asp Ser Lys Met Gly Phe Val Ile Asn Ala
405 410 415
Ile Tyr Ala Met Ala His Gly Leu Gln Asn Met His His Ala Leu Cys
420 425 430
Pro Gly His Val Gly Leu Cys Asp Ala Met Lys Pro Ile Asp Gly Ser
435 440 445
Lys Leu Leu Asp Phe Leu Ile Lys Ser Ser Phe Ile Gly Val Ser Gly
450 455 460
Glu Glu Val Trp Phe Asp Glu Lys Gly Asp Ala Pro Gly Arg Tyr Asp
465 470 475 480
Ile Met Asn Leu Gln Tyr Thr Glu Ala Asn Arg Tyr Asp Tyr Val His
485 490 495
Val Gly Thr Trp His Glu Gly Val Leu Asn Ile Asp Asp Tyr Lys Ile
500 505 510
Gln Met Asn Lys Ser Gly Val Val Arg Ser Val Cys Ser Glu Pro Cys
515 520 525
Leu Lys Gly Gln Ile Lys Val Ile Arg Lys Gly Glu Val Ser Cys Cys
530 535 540
Trp Ile Cys Thr Ala Cys Lys Glu Asn Glu Tyr Val Gln Asp Glu Phe
545 550 555 560
Thr Cys Lys Ala Cys Asp Leu Gly Trp Trp Pro Asn Ala Asp Leu Thr
565 570 575
Gly Cys Glu Pro Ile Pro Val Arg Tyr
580 585

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<212> PRT
<213> Escherichia coli

<400> 45
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35 40 45
Ala Glu Gln Ala Ile Lys Asp Ile Asn Ala Lys Gly Gly Ile Lys Gly
50 55 60
Asp Lys Leu Val Gly Val Glu Tyr Asp Asp Ala Cys Asp Pro Lys Gln
65 70 75 80
Ala Val Ala Val Ala Asn Lys Ile Val Asn Asp Gly Ile Lys Tyr Val
85 90 95
Ile Gly His Leu Cys Ser Ser Ser Thr Gln Pro Ala Ser Asp Ile Tyr
100 105 110
Glu Asp Glu Gly Ile Leu Met Ile Ser Pro Gly Ala Thr Ala Pro Glu
115 120 125

A1 cont.

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Ser Ser Gln Gly Pro Thr Ala Ala Lys Tyr Ile Leu Glu Thr Val Lys
145                 150                 155                 160
Pro Gln Arg Ile Ala Ile Ile His Asp Lys Gln Gln Tyr Gly Glu Gly
                165                 170                 175
Leu Ala Arg Ser Val Gln Asp Gly Leu Lys Ala Ala Asn Ala Asn Val
            180                 185                 190
Val Phe Phe Asp Gly Ile Thr Ala Gly Glu Lys Asp Phe Ser Ala Leu
        195                 200                 205
Ile Ala Arg Leu Lys Lys Glu Asn Ile Asp Phe Val Tyr Tyr Gly Gly
    210                 215                 220
Tyr Tyr Pro Glu Met Gly Gln Met Leu Arg Gln Ala Arg Ser Val Gly
225                 230                 235                 240
Leu Lys Thr Gln Phe Met Gly Pro Glu Gly Val Gly Asn Ala Ser Leu
                245                 250                 255
Ser Asn Ile Ala Gly Asp Ala Ala Glu Gly Met Leu Val Thr Met Pro
            260                 265                 270
Lys Arg Tyr Asp Gln Asp Pro Ala Asn Gln Gly Ile Val Asp Ala Leu
        275                 280                 285
Lys Ala Asp Lys Lys Asp Pro Ser Gly Pro Tyr Val Trp Ile Thr Tyr
    290                 295                 300
Ala Ala Val Gln Ser Leu Ala Thr Ala Leu Glu Arg Thr Gly Ser Asp
305                 310                 315                 320
Glu Pro Leu Ala Leu Val Lys Asp Leu Lys Ala Asn Gly Ala Asn Thr
                325                 330                 335
Val Ile Gly Pro Leu Asn Trp Asp Glu Lys Gly Asp Leu Lys Gly Phe
            340                 345                 350
Asp Phe Gly Val Phe Gln Trp His Ala Asp Gly Ser Ser Thr Ala Ala
        355                 360                 365
Lys
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<210> 46
<211> 344
<212> PRT
<213> Escherichia coli

<400> 46

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Glu Asp Ile Lys Val Ala Val Val Gly Ala Met Ser Gly Pro Val Ala
 1               5                  10                  15
Gln Tyr Gly Asp Gln Glu Phe Thr Gly Ala Glu Gln Ala Val Ala Asp
            20                  25                  30
Ile Asn Ala Lys Gly Gly Ile Lys Gly Asn Lys Leu Gln Ile Ala Lys
        35                  40                  45
Tyr Asp Asp Ala Cys Asp Pro Lys Gln Ala Val Ala Val Ala Asn Lys
    50                  55                  60
Val Val Asn Asp Gly Ile Lys Tyr Val Ile Gly His Leu Cys Ser Ser
65                  70                  75                  80
Ser Thr Gln Pro Ala Ser Asp Ile Tyr Glu Asp Glu Gly Ile Leu Met
                85                  90                  95
Ile Thr Pro Ala Ala Thr Ala Pro Glu Leu Thr Ala Arg Gly Tyr Gln
            100                 105                 110
Leu Ile Leu Arg Thr Thr Gly Leu Asp Ser Asp Gln Gly Pro Thr Ala
        115                 120                 125
Ala Lys Tyr Ile Leu Glu Lys Val Lys Pro Gln Arg Ile Ala Ile Val
    130                 135                 140
His Asp Lys Gln Gln Tyr Gly Glu Gly Leu Ala Arg Ala Val Gln Asp
145                 150                 155                 160
Gly Leu Lys Lys Gly Asn Ala Asn Val Val Phe Phe Asp Gly Ile Thr
                165                 170                 175
Ala Gly Glu Lys Asp Phe Ser Thr Leu Val Ala Arg Leu Lys Lys Glu
```

```
                180                 185                 190
Asn Ile Asp Phe Val Tyr Tyr Gly Gly Tyr His Pro Glu Met Gly Gln
        195                 200                 205
Ile Leu Arg Gln Ala Arg Ala Ala Gly Leu Lys Thr Gln Phe Met Gly
    210                 215                 220
Pro Glu Gly Val Ala Asn Val Ser Leu Ser Asn Ile Ala Gly Glu Ser
225                 230                 235                 240
Ala Glu Gly Leu Leu Val Thr Lys Pro Lys Asn Tyr Asp Gln Val Pro
                245                 250                 255
Ala Asn Lys Pro Ile Val Asp Ala Ile Lys Ala Lys Lys Gln Asp Pro
            260                 265                 270
Ser Gly Ala Phe Val Trp Thr Thr Tyr Ala Ala Leu Gln Ser Leu Gln
        275                 280                 285
Ala Gly Leu Asn Gln Ser Asp Asp Pro Ala Glu Ile Ala Lys Tyr Leu
    290                 295                 300
Lys Ala Asn Ser Val Asp Thr Val Met Gly Pro Leu Thr Trp Asp Glu
305                 310                 315                 320
Lys Gly Asp Leu Lys Gly Phe Glu Phe Gly Val Phe Asp Trp His Ala
                325                 330                 335
Asn Gly Thr Ala Thr Asp Ala Lys
            340
```

A1 Concl.